

January 17, 2019

## **Options for Announcing an End to Reducing the Size of the Balance Sheet<sup>1</sup>**

### **1. Introduction**

The Federal Open Market Committee may wish to provide the public with greater clarity on balance sheet normalization by announcing a plan to stop reducing holdings in the System Open Market Account (SOMA) by a specified date.

Announcing such a plan may help assuage concerns from some market participants that, if portfolio runoff were to continue long enough, it could inappropriately tighten financial conditions. Announcing a plan would also, by setting a date after which the pace of reserve decline will slow, allow banks and other money market participants more time to adjust to a lower level of aggregate reserves and potentially promote a smoother transition to the long run operating framework.<sup>2</sup> Announcing an end date for redemptions need not limit the Committee's flexibility to slow or stop redemptions sooner should it be deemed appropriate, as communications could convey that the Committee will be responsive to changing economic conditions.

This memo reviews a range of considerations associated with such a plan and presents three specific options that would stop redemptions on June 30, September 30, or December 31, 2019, respectively.<sup>3</sup> These considerations relate to total asset holdings (section 2), to reserve levels (section 3), to policy implementation (section 4), and to technical calendar issues (section 5). In addition, the memo presents options for communicating how payments of principal received from securities holdings will be reinvested in the near term, once balance sheet runoff ends (section 6).

Across the range of considerations reviewed, a September date to end redemptions appears to strike a balance between policy tradeoffs. Stopping earlier might

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<sup>2</sup> This memo considers calendar-based stopping rules, by which the FOMC would announce in advance a date after which portfolio redemptions would stop. The alternative of a quantity-based rule, by which the FOMC would choose a target size for the portfolio or a target level of reserves, would provide less certainty about when redemptions would end because of the uncertainty surrounding the evolution of MBS prepayments and non-reserve liabilities.

<sup>3</sup> Under these proposed plans, reinvestments would begin with maturities starting in the subsequent months, which are July 2019, October 2019, and January 2020, respectively.

signal undue concern about the implications of balance sheet reduction for financial conditions or leave the supply of reserves at inefficiently high levels for a longer time. Stopping later may increase the risk of having to end balance sheet reduction before the announced date due to a greater-than-desired tightening in financial conditions or challenges adjusting to a lower supply of reserves.

Alternatively, the Committee could choose not to announce an end to redemptions at this time, which would preserve optionality for stopping at a later date but would provide less certainty about future balance sheet policy and give financial institutions less time to prepare for lower reserve levels.

## **2. Policy Considerations Related to Total Asset Holdings**

Figure 1 illustrates the path of total SOMA assets under each option, assuming the balance sheet size remains relatively stable for some time after redemptions end.<sup>4</sup> (As discussed in the next section, the Committee may judge that the level of reserves most consistent with efficient and effective implementation has been reached earlier or later than the horizon shown; once that level is reached, the SOMA portfolio would resume its growth in line with trend growth in the demand for Federal Reserve liabilities.)

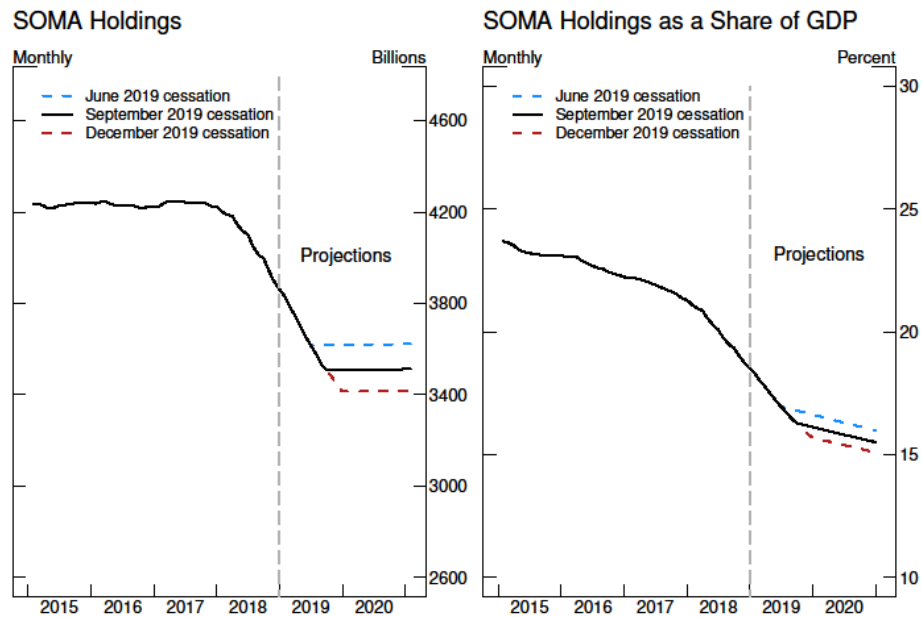
The FOMC's balance sheet normalization program drew considerable public attention in the intermeeting period. Some market participants expressed concern that a redemption policy without a specified end date and with little flexibility to adjust to changing conditions could ultimately result in an undue tightening of financial conditions. Announcing a stopping date could reduce concerns about this risk by providing greater certainty about how long SOMA redemptions will continue and about the likely size of the Federal Reserve's balance sheet, beyond the information that the Committee has already provided.<sup>5</sup>

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<sup>4</sup> The appendix provides further details on the assumptions underlying these projections. In all of the options, redemptions cease earlier than in the current Tealbook baseline, in which staff assume that redemptions continue until reserve balances fall to \$1 trillion. Even after the stopping date, the balance sheet size may fluctuate modestly over time, particularly if the Desk conducts repo operations or Treasury bill purchases that temporarily increase reserve supply to offset volatility in non-reserve liabilities.

<sup>5</sup> In the June 2017 addendum to the Committee's Policy Normalization Principles and Plans, the FOMC indicated that it expects to reduce the level of reserves to "a level appreciably below that seen in recent years but larger than before the financial crisis." In addition, the 2018 Senior Financial Officer Survey published in November suggested that, with market interest rates near the rate paid on excess reserves, banks' lowest comfortable level of reserves is appreciably higher than pre-crisis reserve balances. In the subsequent December Desk survey of primary dealers and market participants, the median response for expectations of the level of reserves in 2025 was \$1.1 trillion.

**Figure 1: Projected SOMA Holdings If Redemptions End in 2019**



Source: Staff projections.

The variation in SOMA size and composition between the three considered stopping points should make little to no difference to the amount of monetary accommodation directly provided by asset holdings. Nonetheless, different stopping dates could signal different degrees of concern on the part of the Committee that the redemption policy has played a meaningful role in the recent tightening of financial conditions. Communicating a June end date for redemptions, in particular, could suggest that the Committee is responding to current conditions and might create the perception that the Committee itself views further balance sheet reduction as inconsistent with the appropriate stance of policy.

Desk surveys indicate that most market participants currently expect redemptions to continue into early 2020. Any end date in 2019 could therefore come sooner than consensus expectations and potentially lead to decreases in longer-term yields and increases in asset prices. However, it is also possible that investors whose expectations differ from the consensus could have an important effect on market prices and that some 2019 end dates might match these investors' expectations or disappoint them.

In announcing a stopping date, the Committee could also affirm its flexibility to respond to changes in the economic outlook by revising the redemption policy before that date is reached.

### **3. Policy Considerations Related to Reserve Levels**

Announcing in advance an end to SOMA redemptions could help promote a smooth transition to a long-run operating framework. As described in a previous memo to the Committee, banks and other market participants may require time to adjust to lower levels of reserves, for example by competing for deposits, by changing their business models to reduce their demand for reserves, or by establishing new counterparty relationships to be able to borrow funds when needed. Ceasing redemptions when the supply of reserves is well above the expected minimum level of reserves in an abundant excess reserves regime is one way to provide financial institutions with time to adjust to lower reserve levels.<sup>6</sup> A smoother adjustment process could reduce the need to introduce ceiling tools to maintain rate control and help to limit operational complexity during the transition to the long-run operating regime.

Since October 2017, the supply of reserves has been declining at a fairly quick pace as a result of both asset redemptions and trend growth in non-reserve liabilities. Any stopping date in 2019 would slow this quick pace of reserve decline, but different dates have different implications for the path of reserve supply and for the subsequent choices the Committee will face.

Once redemptions end, the Committee could allow growth in non-reserve liabilities to continue to reduce the supply of reserves, at a slower average pace. In this case, the Committee might allow daily fluctuations of reserve levels around the trend, or might consider directing the Desk to use open market operations to smooth out day-to-day variability in reserve levels. This decision, in part, may depend on what is learned over time about the response of money markets to rapid changes in reserve supply.

Alternatively, the Committee could determine that the most efficient and effective level of reserves has been reached and begin increasing asset holdings to accommodate trend growth in non-reserve liabilities. Trend growth can be defined as increases in liabilities that are expected to persist indefinitely; these increases could occur smoothly or discretely. Open market operations that increase asset holdings on a permanent basis could be conducted periodically to offset trend growth in non-reserve liabilities and maintain the average level of reserves. In addition, temporary open market operations might be conducted periodically to offset large transitory dips in reserve supply.

The tradeoffs between these possibilities will depend on the level of reserves at the stopping point. If redemptions end soon, reserve supply is likely to be higher than the minimum necessary to maintain a regime of abundant excess reserves, but it could afford

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<sup>6</sup> See “Detecting and Approaching the Long-Run Level of Reserves,” December 7, 2018.

the Committee the opportunity to more gradually approach the level of reserves most consistent with efficient operation of an abundant excess reserves regime. On the other hand, if redemptions continue all the way through December, there may be little room for further gradual reduction in reserves and it could soon become necessary to begin conducting permanent open market operations to offset trend growth in other liabilities. Stopping redemptions in September could strike a balance between these concerns.

Nevertheless, the point at which balance sheet growth might need to resume is uncertain and depends on banks' demand for reserves and the frequency with which the Committee would prefer to conduct open market operations if it maintains an abundant excess reserves regime.<sup>7</sup> The Committee can expect to learn more about reserve demand and about the tradeoffs between reserve supply and frequency of operations in the coming months as the balance sheet continues to normalize. Accordingly, it could defer for now any decision on when to resume increases in asset holdings.

Figure 2 shows the projected path of monthly average reserve supply in each of the three options, assuming no further growth in the portfolio after the stopping date. As shown in Table 1, if the Committee chooses to stop redemptions on September 30, 2019, the average level of reserves in the month before stopping is projected to be around \$1.2 trillion. Once redemptions end, the monthly average level of reserves is projected to fall gradually, by about \$10 billion per month on average, mostly as a result of increases in Federal Reserve notes in circulation. If redemptions end in September and there is no further asset growth, the average level of reserves is expected to reach \$1 trillion in March of 2021, compared with mid-2020 for the December stopping date, and December 2021 for the June stopping date.<sup>8</sup>

**Table 1: Projected Reserve Levels**

<b>Stopping date</b>	<b>Average reserve level in month before redemptions end</b>	<b>Month in which average reserves reach \$1 trillion</b>
6/30/2019	\$1.3 trillion	December 2021
9/30/2019	\$1.2 trillion	March 2021
12/31/2019	\$1.1 trillion	June 2020

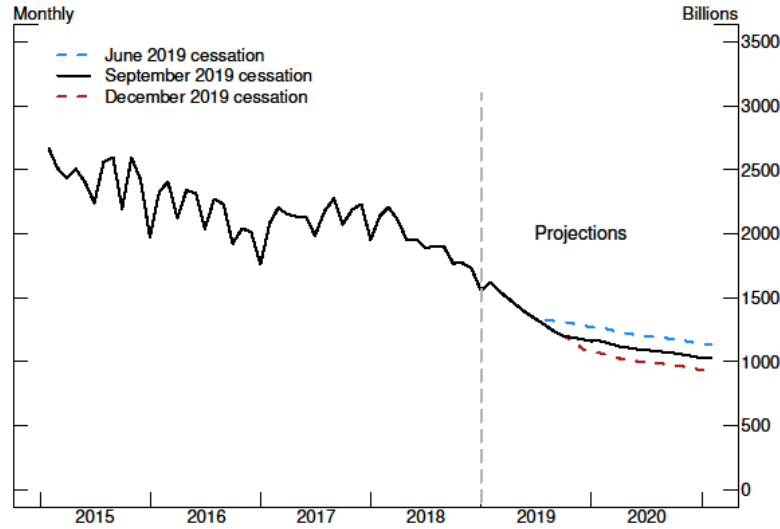
Source: Staff projections.

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<sup>7</sup> Maintaining a larger buffer of reserves would reduce the size and frequency of open market operations needed to maintain rate control.

<sup>8</sup> The \$1 trillion reserve level is a plausible estimate of the minimum amount of reserves necessary to operate an abundant reserves regime. This estimate is very uncertain and depends on factors including bank demand for reserves, market conditions, and Committee preferences for the size and frequency of open market operations. See "The Federal Reserve's Long-Run Operating Regime," October 22, 2018.

**Figure 2: Projected Monthly Average Reserve Levels if Redemptions End in 2019**



Source: Staff projections.

#### **4. Implications of Uncertainty and Variability in Reserve Supply and Demand**

Both the demand for reserves and the projected supply of reserves are subject to significant uncertainty, and there is substantial intra-month variability in the supply of reserves. The longer redemptions continue, the greater the risk that these sources of uncertainty and variability may affect policy implementation.

Uncertainty about the potential growth rate of Federal Reserve notes in circulation as well as other liabilities creates a small risk that the monthly average level of reserves could be significantly different than in the baseline projections. The appendix provides more detail on the potential for non-reserve liabilities to deviate from the expected path, and in particular for faster-than-expected growth in these liabilities to result in unexpectedly low reserve levels that could influence monetary policy implementation.

Monthly averages also do not provide a complete picture of how reserve supply will evolve over time. Reserve supply exhibits substantial intra-month variability as a result of movements in other liabilities, especially the Treasury General Account (TGA), as well as seasonal patterns in Federal Reserve notes. As shown in Figure 3, which plots daily reserve balances throughout 2018, it is not uncommon for reserve supply on a particular day to fall as much as \$100 billion below the monthly average.

**Figure 3: Reserve Balances in 2018**



Source: Federal Reserve Board.

In recent years, this variability in reserve supply has had little impact on conditions in the federal funds market, or money markets in general, because reserves have been highly abundant. However, if the level of reserves declines closer to a point at which the demand curve steepens, the variability in reserves could lead to a pickup in interest rate volatility unless these declines were offset by temporary open market operations.<sup>9,10</sup>

There is also uncertainty about the level of reserves at which signs of scarcity might emerge, and about how sharply the federal funds rate would respond to changes in reserve supply.<sup>11</sup> This uncertainty, combined with uncertainty in the reserve projections, makes it difficult to know how close reserve supply would be to the point of scarcity – and how much need there might be for temporary open market operations to maintain rate control – for any given stopping date.

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<sup>9</sup> Such operations would temporarily increase the size of the balance sheet.

<sup>10</sup> Because of the large intra-month swings in reserve supply, interest rates could be volatile on some days even if the monthly average level of reserves is well above the point where the reserve demand curve steepens. To maintain rate control, it might be necessary either to maintain a substantial buffer of reserves above that point, or to anticipate days or periods when reserve balances are likely to fall significantly and to conduct open market operations that temporarily supply more reserves.

<sup>11</sup> See “The Federal Reserve’s Long-Run Operating Regime,” October 22, 2018; “Recent Developments in Reserve Markets and Understanding Reserve Demand,” October 19, 2018; and “Detecting and Approaching the Long-Run Level of Reserves,” December 7, 2018.

## **5. Technical Calendar Considerations Related to the Choice of Stopping Date**

Dates significantly earlier or later than September 30 may present implementation concerns if chosen as a stopping point for redemptions.

Principal payments on SOMA holdings of mortgage-backed securities (MBS) around mid-year are projected to be near the current \$20 billion monthly cap on MBS redemptions, reflecting recent declines in interest rates as well as typical seasonality in mortgage prepayments. If long-term interest rates decline further, principal payments around mid-year may rise above the redemption cap. Under current policy, the Federal Reserve would reinvest the proceeds into MBS to the extent that they exceeded the cap. If the FOMC stops redemptions in June and begins reinvesting proceeds from MBS holdings into Treasury securities it may be perceived as exacerbating conditions at a time when the market is already absorbing significant prepayments on MBS, even though the actual amount of prepayments over the cap is likely to be small. Such concerns could be avoided by choosing a date later in the year, when seasonal factors are likely to reduce MBS prepayments. Alternatively, after redemptions end, the Committee could continue to reinvest MBS proceeds into MBS to the extent that they exceed a cap.

In addition, as discussed in section 6, some further development and communication of reinvestment policies will need to occur after the Committee announces a stopping date for redemptions. This process may include communications with Treasury about the reinvestment plan and information for market participants on the plans for securities purchases and rollovers. Staff assess that this work would ordinarily take approximately six months to execute, making stopping dates after June preferable.

If the Committee were to end redemptions near year end, reserves might already be at or near a point where maintaining rate control would require using open market operations to offset some daily shocks to reserve supply. There are also large seasonal declines in reserve supply around year end. Even without such shocks, money market rates typically exhibit volatility around year end, due in part to regulatory constraints that affect balance sheet management and dealer positioning and changes in banks' demand for reserves. It could be challenging to begin using open market operations to support rate control just as year-end volatility emerges. By stopping redemptions well before year end, such as on September 30, the Committee could reduce this risk because reserve supply would be somewhat higher leading up to year end.

## **6. Choices about Reinvestment Policy**

In communicating an end to the redemption policy, the Committee may wish to provide guidance on how principal payments received from SOMA securities holdings

will be reinvested once redemptions have stopped. For the MBS portfolio, in particular, it may be desirable to confirm that proceeds from paydowns will be reinvested in Treasury securities, consistent with the statement in the 2014 Policy Normalization Principles and Plans that the Committee intends to have a portfolio comprising primarily Treasury securities in the longer run.

Communication about reinvestments following the January FOMC meeting could be a relatively simple statement indicating that principal payments from holdings of both Treasury securities and MBS will be reinvested into Treasury securities. At a future meeting, the Committee could consider in more detail how to spread its reinvestments across the maturity distribution of Treasury securities; this could help address questions of how reinvestments will be allocated that might emerge once a stopping date for redemptions is announced.

The Committee could also consider whether to indicate that MBS principal payments above the current \$20 billion monthly cap will continue to be reinvested in MBS once the portfolio size is normalized, or whether to begin reinvesting all MBS principal payments in Treasury securities at that time. Although the cap on MBS redemptions does not currently bind, retaining it would continue to provide some support to the MBS market by limiting the pace at which the Federal Reserve's MBS holdings could decline if prepayment rates increase significantly. Such scenarios appear unlikely but could occur if long-term interest rates were to decline by a large amount either in response to adverse economic shocks in the United States or as a result of international developments pulling rates down domestically.<sup>12</sup> However, retaining the cap on MBS redemptions could also slow the transition to a portfolio consisting primarily of Treasury securities.

### **Appendix: Uncertainty in Projected Reserve Supply**

The baseline projection assumes that Federal Reserve notes in circulation grow at an annual rate of 6 percent through 2021, subject to seasonal fluctuations, and proportional to nominal GDP thereafter; that the Treasury General Account grows proportional to nominal GDP starting from its December 2018 average size; and that other liabilities hold constant at their average sizes in December 2018.

An important risk to the baseline projection for reserves is that Federal Reserve notes in circulation could grow faster or slower than expected. Unexpectedly slow growth

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<sup>12</sup> For example, staff analysis suggests that rates in late 2019 would likely need to drop more than 125 basis points below the level of the December Tealbook interest rate projections for monthly principal payments to rise above \$20 billion in the summer of 2020.

would leave reserve supply higher than otherwise and would not be expected to affect policy implementation. However, unexpectedly fast currency growth would reduce reserves and potentially bring supply closer to a steep portion of the demand curve. A currency growth rate of 10 percent per year would be at the 90<sup>th</sup> percentile of observed annual growth rates since 1960, and would reduce reserves by roughly \$65 billion at the end of 2019 relative to their level at this date in the baseline projection for each of the three options. In addition, other non-reserve liabilities could grow larger than in the baseline projection. At the high end, the staff estimates that the monthly average size of the Treasury General Account could be as large as \$450 billion, compared with its December 2018 level of \$357 billion; that the foreign repo pool could grow as large as \$300 billion, up from \$241 billion; and that the accounts of designated financial market utilities could reach \$100 billion, up from \$70 billion. However, non-reserve liabilities are more likely to remain smaller than these levels, it is unlikely that all of these risks to non-reserve liabilities would materialize simultaneously, and the Committee could take steps to respond to some of these potential developments. Altogether, staff judge that there is only a small chance that the average level of reserves would be \$200 billion below the baseline projection in December 2019.